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A chip card is provided which is equipped with a thin film battery, such as those that utilize a LiPON electrolyte. Since the battery does not require venting, it can be sealed within the card, thereby making the card more tamper resistant. Moreover, the terminals of the battery and memory are encased in an epoxy resin, and a volatile memory type is employed. This improves the resistance of the card toward common tampering schemes involving the use of sulfuric acid or other mineral acids. In particular, if such acids are used in an attempt to access the memory module in order to tamper with the card, they will dissolve the epoxy resin around the battery terminals, resulting in a short circuit and erasing the memory contents of the card.